

Application Serial No. 09/855,480
Amendment dated April 2, 2003
Reply to Office action of October 2, 2002

IN THE CLAIMS:

The listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A beneficiated sludge solids composition characterized by its ability to reduce ammonia emissions of increased nitrogen and phosphorus content and increased economic value, the composition comprising:

digested municipal sewage sludge containing carbonate or carbon dioxide;

ammonium sulfate;

mineral acid; and

phosphate salt;

wherein the acid causes decomposition of the carbonate or carbon dioxide so that

ammonia emissions are minimized.

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2. (Original) The beneficiated sludge solids composition of Claim 1, comprising on a water-free basis: about 10 wt.% to about 77 wt.% of said digested municipal sewage sludge; about 21 wt.% to about 88 wt.% of said ammonium sulfate; about 1 wt.% to about 12 wt.% of said mineral acid; and about 0.3 wt.% to about 6 wt.% of said phosphate salt.

3. (Original) The beneficiated sludge solids composition of Claim 1, comprising on a water-free basis: about 25 wt.% to about 75 wt.% of said digested municipal sewage sludge; about 23 wt.% to about 73 wt.% of said ammonium sulfate; about 2.5 wt.% to about 9 wt.% of said mineral acid; and about 0.5 wt.% to about 5 wt.% of said phosphate salt.

Application Serial No. 09/855,480
Amendment dated April 2, 2003
Reply to Office action of October 2, 2002

4. (Original) The beneficiated sludge solids composition of Claim 1, comprising on a water-free basis: about 35 wt.% to about 70 wt.% of said digested municipal sewage sludge; about 28 wt.% to about 63 wt.% of said ammonium sulfate; about 2.5 wt.% to about 9 wt.% of said mineral acid; and about 0.5 wt.% to about 5 wt.% of said phosphate salt.

5. (Original) The beneficiated sludge solids composition of Claim 1, wherein the digested municipal sewage sludge is anaerobically digested.

6. (Original) The beneficiated sludge solids composition of Claim 1, wherein the mineral acid is at least one member selected from the group consisting of sulfuric acid and phosphoric acid.

7. (Original) The beneficiated sludge solids composition of Claim 1, wherein the phosphate salt is at least one member selected from the group consisting of ammonium metaphosphate (NH_4PO_3), ammonium monobasic phosphate ($\text{NH}_4\text{H}_2\text{PO}_4$), ammonium dibasic phosphate ($(\text{NH}_4)_2\text{HPO}_4$), ammonium polyphosphate ($(\text{NH}_4)_5\text{P}_3\text{O}_{10}$)), trisodium phosphate (Na_3PO_4), tetrasodium pyrophosphate ($\text{Na}_4\text{P}_2\text{O}_7$), sodium tripolyphosphate ($\text{Na}_5\text{P}_3\text{O}_{10}$), hexasodium hexaphosphate ($\text{Na}_6\text{P}_6\text{O}_{18}$), potassium metaphosphate (KPO_3), potassium pyrophosphate ($\text{K}_4\text{P}_2\text{O}_7$), potassium monobasic phosphate (KH_2PO_4), potassium dibasic phosphate (KHPO_4), potassium tribasic phosphate (K_3PO_4) and calcium superphosphate ($\text{Ca}(\text{H}_2\text{PO}_4)_2$).

Application Serial No. 09/855,480
Amendment dated April 2, 2003
Reply to Office action of October 2, 2002

8. (Currently Amended) The beneficiated sludge solids composition of Claim 1, wherein the phosphate salt is at least one member selected from the group consisting of trisodium phosphate and sodium tripolyphosphate.

9. (Original) The beneficiated sludge solids composition of Claim 1, having a water content of between about 0 wt.% to about 10 wt.%.

10. (Original) The beneficiated sludge solids composition of Claim 1, having a water content of between about 0 wt.% to about 5 wt.%.

11. (Original) The beneficiated sludge solids composition of Claim 10 in granulated form.

12. (Original) A beneficiated sludge solids composition of increased nitrogen and phosphorus content and increased economic value comprising: digested municipal sewage sludge; ammonium sulfate; and superphosphoric acid.

13. (Original) The beneficiated sludge solids composition of Claim 12, comprising on a water-free basis: about 10 wt.% to about 77 wt.% of said digested municipal sewage sludge; about 20 wt.% to about 87 wt.% of said ammonium sulfate; about 0.5 wt.% to about 12 wt.% of said superphosphoric acid.

14. (Original) The beneficiated sludge solids composition of Claim 12, comprising on a water-free basis: about 25 wt.% to about 75 wt.% of said digested municipal sewage sludge; about 24 wt.% to about 74 wt.% of said ammonium sulfate; about 1 wt.% to about 9 wt.% of said superphosphoric acid.

Application Serial No. 09/855,480
Amendment dated April 2, 2003
Reply to Office action of October 2, 2002

15. (Original) The beneficiated sludge solids composition of Claim 12, comprising on a water-free basis: about 35 wt.% to about 70 wt.% of said digested municipal sewage sludge; about 29 wt.% to about 64 wt.% of said ammonium sulfate; about 1 wt.% to about 9 wt.% of said superphosphoric acid.

16. (Original) The beneficiated sludge solids composition of Claim 12, wherein the digested municipal sewage sludge is anaerobically digested.

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17. (Original) The beneficiated sludge solids composition of Claim 12 having a water content between about 0 wt.% to about 10 wt.%.

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18. (Original) The beneficiated sludge solids composition of Claim 12 having a water content between about 0 wt.% to about 5 wt.%.

19. (Original) The beneficiated sludge solids composition of Claim 18 in granulated form.

Claims 20 – 29 (Withdrawn)
